

AMENDMENTS TO THE CLAIMS

The following is a complete, marked-up listing of revised claims with a status identifier in parentheses, underlined text indicating insertions, and strikethrough text indicating deletions.

IN THE CLAIMS:

1. (CURRENTLY AMENDED) A device comprising:

a composite material comprising aligned nanowires at least partially coated by a magnetic material, wherein the nanowires are electrically connected by at least one of contact among the nanowires and a conductive material present in the composite material, wherein at least a portion of the ~~nanotubes~~ nanowires protrude from a surface of the composite material by an average protrusion of at least twice the average diameter of the nanowires, and wherein the nanowires have an average length of about 0.1 μm to about 10,000 μm .

2. (ORIGINAL) The device of claim 1, wherein the device is an electron field emission device.

3. (CURRENTLY AMENDED) The device of claim 1, wherein the protruding ~~nanotubes~~ nanowires comprise broken ends.
4. (ORIGINAL) The device of claim 1, wherein the magnetic material comprises less than about 0.95 vol.% of the coated nanowires.
5. (ORIGINAL) The device of claim 4, wherein the magnetic material comprises less than about 0.75 vol.% of the coated nanowires.
6. (ORIGINAL) The device of claim 1, wherein the average protrusion height is at least 20 nm.
7. (ORIGINAL) The device of claim 6, wherein average protrusion height is at least 100 nm.
8. (ORIGINAL) The device of claim 1, wherein the composite material comprises at least 1 vol.% nanowires to a depth of at least 2 μm from the surface from which the nanowires protrude.

9. (ORIGINAL) The device of claim 1, wherein the variation in average protrusion height is less than 40%.
10. (ORIGINAL) The device of claim 1, wherein the composite material comprises the conductive material.
11. (ORIGINAL) The device of claim 1, wherein the composite material is disposed on a substrate as an arrayed emitter structure.
12. (ORIGINAL) The device of claim 1, wherein the composite material is part of an emitter structure, and wherein the device further comprises an apertured grid located over at least a portion of the composite material, the grid comprising a grid layer and an insulating layer.
13. (ORIGINAL) The device of claim 1, wherein the composite material is part of an emitter structure, and wherein the device further comprises an apertured grid located over at least a portion of the emitters, the grid comprising at least a first and a second grid conductor layer, the first grid conductor layer separated from the emitter structure by a first insulating layer, and the first and second grid conductor layers separated by a second insulating layer.

14. (ORIGINAL) The device of claim 13, wherein the apertured grid further comprises third and fourth grid conductor layers, the third grid conductor layer separated from the second grid conductor layer by a third insulating layer, and the fourth grid conductor layer separated from the third grid conductor layer by a fourth insulating layer.

15. (ORIGINAL) The device of claim 1, wherein the nanowires are selected from carbon, silicon, and germanium.

16. (ORIGINAL) The device of claim 15, wherein the nanowires are carbon nanotubes and at least a portion of the magnetic material is present in the interior of the nanotubes.

17. (CURRENTLY AMENDED) The device of claim 1, wherein the coating magnetic material is comprises a structure selected from the group consisting of ferromagnetic and, ferrimagnetic, ~~near~~superparamagnetic, and superparamagnetic coating structures.

18. (CURRENTLY AMENDED) The device of claim ~~17~~1, wherein the structure magnetic material is selected from the group consisting of comprising near-superparamagnetic and superparamagnetic coating structures.

19.-35. (CANCELLED)

36. (CURRENTLY AMENDED) A device comprising:

a composite material comprising aligned nanowires at least partially coated by a magnetic material, wherein the nanowires are electrically connected by at least one of contact among the nanowires and a conductive material present in the composite material, wherein at least a portion of the ~~nanotubes~~nanowires protrude from a surface of the composite material by an average protrusion of at least twice the average diameter of the nanowires, and wherein the nanowires have an average length of about 0.1 μm to about 10,000 μm , and further wherein the nanowires have an average protrusion height of at least 20 nm.

37. (CURRENTLY AMENDED) A device according to claim ~~19~~36, wherein the nanowires have an average protrusion height of at least 100 nm.

38. (CURRENTLY AMENDED) A device according to claim ~~19~~36, wherein the composite material comprises at least 1 vol.% nanowires to a depth of at least 2 μm from the surface from which the nanowires protrude.

39. (NEW) A device comprising:

a composite material including aligned nanowires dispersed in a continuous phase,

the continuous phase being selected from a group consisting of polymeric materials and metals and

the nanowires being at least partially coated with an exterior layer of a magnetic material, the exterior layer having an average thickness of at least about 0.1 nm,

wherein electrical connection between the nanowires is provided by direct contact among the nanowires or through a conductive material incorporated in the composite material, and

further wherein at least a portion of the nanowires protrude from a surface of the composite material by an average protrusion of at least twice the average diameter of the nanowires, and wherein the nanowires have an average length of about 0.1 μm to about 10,000 μm .

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